

Tree Felling & Rigging Safety



Presented by:

Kevin K. Eckert

Arbor Global

ISA Board Certified Master Arborist WE-1785BU

Tree Felling & Rigging

Tree felling and rigging required to best manage tree function, health and safety



Tree Felling & Rigging

Felling and rigging is physical and potentially hazardous

- Logs and branches may be very heavy
- Defects may be present, but not visible to unqualified person
- Requires skilled, well-trained workers:
 - All qualifications for personnel and equipment
 - Understand tree anatomy and structure
 - Practical knowledge in tree biomechanics
 - Understand dynamic and shock loading of equipment
 - Advanced experience and ability in rigging



Tree Felling & Rigging Safety

Too often, unqualified individuals fell and rig trees
or

Experienced workers not trained or ignore safety practices

- Significantly increases risk to worker and public
- Results in injuries and sometimes fatalities
- Damages trees and property



Tree Felling & Rigging Accidents

Most common felling and rigging accidents:

- Crush
- Lacerations and punctures
- Chain saw cuts



Tree Felling & Rigging Safety

Always follow safety requirements:

- Applicable laws and regulations (OSHA)
- ANSI Z133.1 standards
- Manufacturer's tool and equipment instructions



Inspection of Gear

Correct equipment

- Designed and rated for felling and rigging

Adequate size and strength for loads

- Working load limits conformed
- Load $< 20\%$ of rated and calculated tensile strength
 - Considering age/wear and knots



Inspection of Gear

Inspect all equipment according to manufacturer's instructions

- Inspect by eye and feel



Felling & Rigging Safety

Develop and follow safe work plan – H.O.P.E.

- Hazards
- Obstacles
- Plan
 - Cutting plan
 - Communications plan
 - Escape route
- Equipment



Hazards & Obstacles

Identify and mitigate hazards and obstacles



Hazards & Obstacles

Assess integrity of structure

- Visible defects that could alter operation
- If defects cause risk due to forces and strains of operation
 - Alternate plan must be developed and applied



Hazards & Obstacles

- Species and form of tree
- Lean
- Loose limbs and overhead material
- Decayed or weak spots on tree and branches
 - Parts where felling cuts will be made
- Evidence of bees or wildlife in tree



Hazards & Obstacles

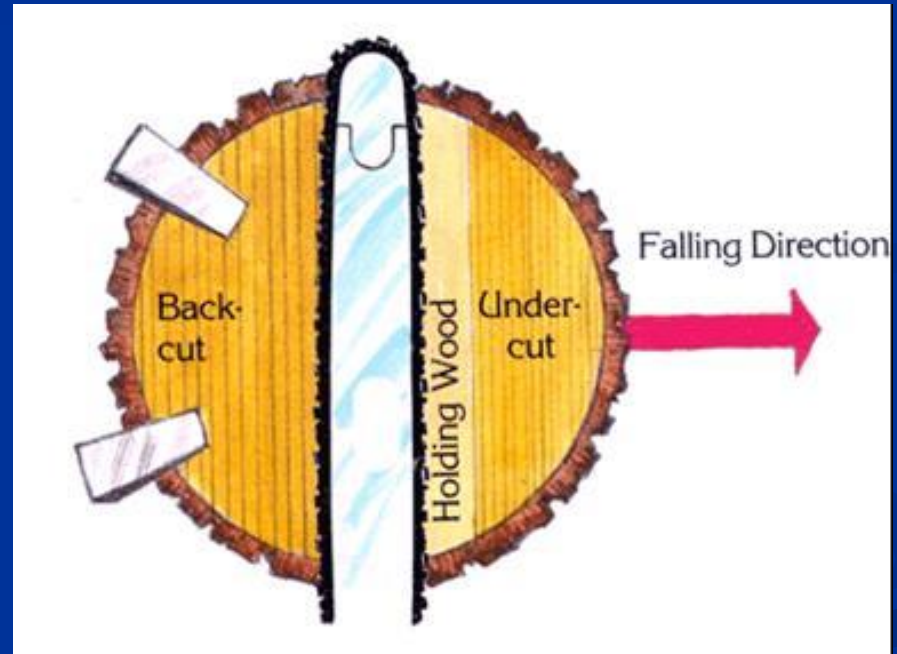
- Terrain characteristics
- Size of fall zone
- Electric lines
- Wind force and direction



Plan - Cutting

Plan felling/rigging operation

- Felling cuts
- Notch required for any tree $> 5''$ diameter



Plan - Cutting

Use appropriate cutting techniques

- Drop cut
- Snap cut
- Hinge cut



Plan - Cutting

Direct and control fall

- Correct face and back-cut
- 45 degree angle or greater
- Guide fall and prevent splitting
 - Standard notch
 - Humbolt
 - Open-face notch



Plan - Cutting

Height of notch and back-cut

- Enable safe control of saw, tree and escape
- Standard/Humbolt - Back-cut 1" to 2" above notch apex

Depth of notch

- Shall not exceed $\frac{1}{3}$ diameter of tree

Back-cut

- Shall not penetrate hinge



Plan - Cutting

Barberchair

- Splitting of tree due to excessive forces
- Improper cutting practices
- Prevention
 - Chain/strap butt of log
 - Plunge cut



Plan - Cutting

Use ropes and equipment to control wood - Rigging

- Control tree/limb to manage fall
 - May permit removal of large limbs faster and safer
- Rigging most advanced tree work techniques
- Only experienced workers should perform rigging
- New techniques should be practiced before application.



Plan - Cutting

Taglines control wood during cutting and lowering

- Avoid obstacles and potential hazards
- Protect cutter and property
- Reduce work effort



Plan - Cutting

Assess rigging points to ensure adequate strength

- If required, ensure no splits, snaps or other failures

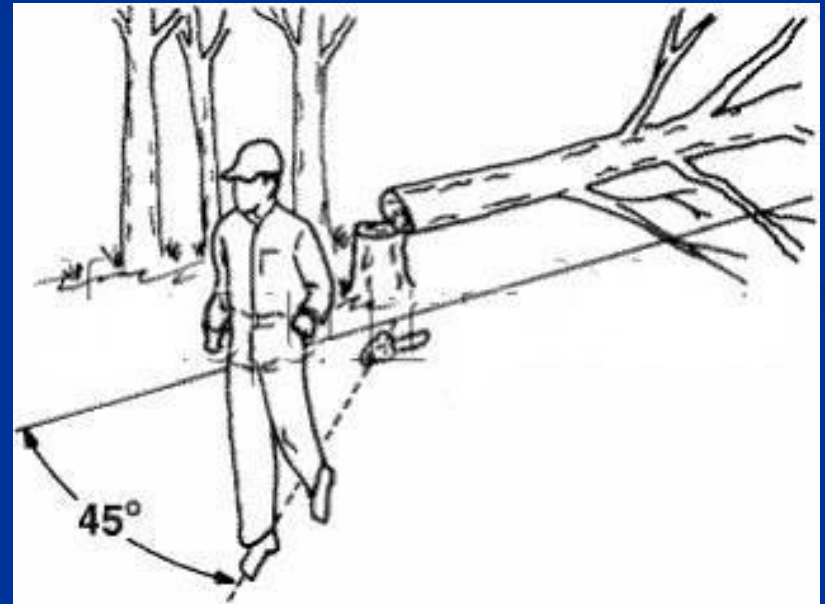
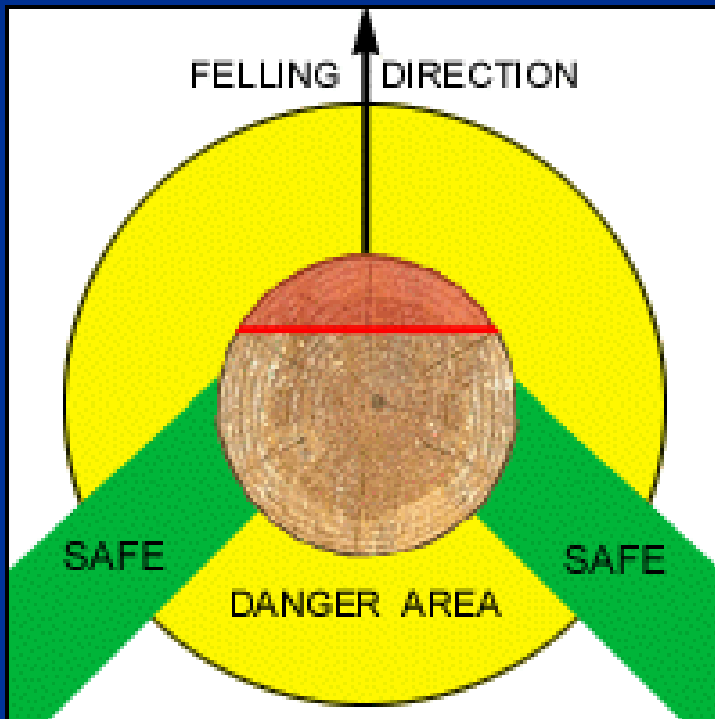
Ensure cutter cannot get entangled with lines should system fail



Escape Route

Escape route

- When tree begins to fall, move quickly away



Escape Route

Cutter always positioned to avoid fall of wood

- Above or to side
- Fall protection lines cleared from fall path



Communications Plan

Personnel position and duties

- Workers not directly involved must be clear
- 2X tree height



Communications Plan

- Voice or visual
- Alert what, when and where
- 2-way – command and response



Communications Plan

Clearly identify fall zone

- Location and safety zone
- No person enters without approval of qualified arborist
- Verify no person in zone when dropping wood



Equipment

Equipment

- Chain saw
- Ropes
- Wedges

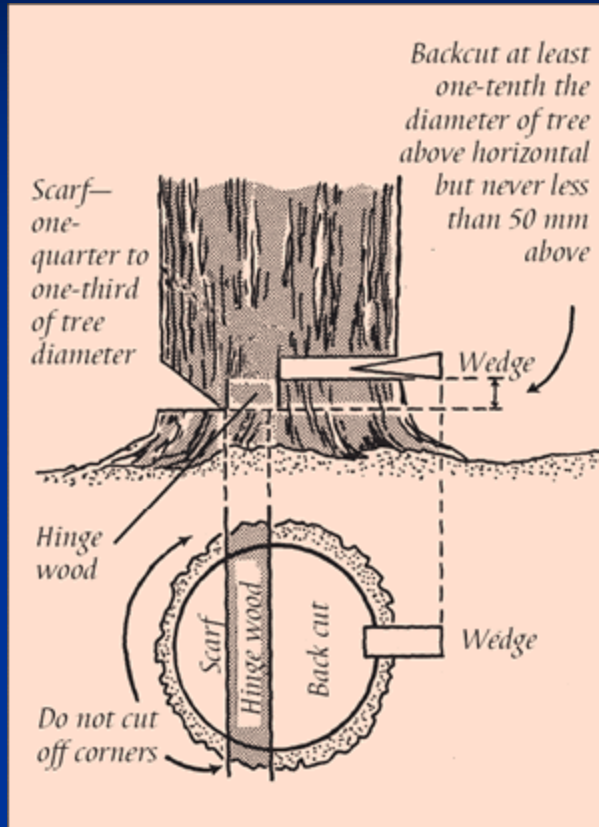


Equipment

- Chain saw adequately fueled
- All equipment in good working condition.



Follow all Safety Standards & Practices



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Arbor Global, PO Box 1343, Kailua, HI 96734

keckert@arborglobal.com

808-254-4161